Spring 2013  
Geography 319  
Introduction to Geographic Information Systems  
Butte Hall room 501

Steve Stewart - Instructor  
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Phone: 898-6089

Class Time:  
Tuesday, Thursday 8:00 – 9:15

Office: Butte Hall 508  
Office Hours: TTH 3:30 – 6:00

Course Description:  
This class focuses on the use of Geographic Information Systems. Emphasis will be placed on Geographic Information Systems theory. Topics to be covered include history of GIS, projections, graphic portrayal of spatial information, digital data structures, data acquisition, software and hardware for GIS, spatial analysis functions, and an overview Geographic Information Systems (GIS).

Course Objectives:  
1. Introduce students to the field of Geographic Information Systems  
2. Review the history of Geographic Information Systems  
3. Become familiar with projection systems  
4. Become familiar with digital data types and models  
5. Provide students with an overview Geographic Information System theory  
6. Introduce students to spatial operations

Exams:  
Two objective exams will be administered (100 pts. each)  
MIDTERM  
FINAL  
Two Quizzes will be administered (25 pts each)  
One applied Quiz will be administered (25 pts)  
The final has an applied component (20 pts)

Laboratory exercises:  
Approximately 8 lab exercises will be given (Generally 10 pts. each)  
Two applied lab projects:  
• The Applied Cartographic Lab 20 pts.  
• The Grand Canyon Lab 20 pts.
Laboratory edict:
Please inform the lab manager or supervisor of any technical problems with the lab. This is the lab manager’s expertise and responsibility. I will, however, ensure that technical issues that impact students’ coursework in the lab are resolved as quickly as possible.

Required Materials:
- Getting to Know ArcGIS Desktop by Tim Ormsby, Eileen Napoleon, Robert Burke, Carolyn Groess, and Laura Feaster. NOTE: You must have the 3rd edition for ArcGIS 10 of this text.

Attendance Policy:
Regular attendance is required. Consistent non-attendance during the first 4 weeks of class will result in the student being withdrawn by the instructor. The responsibility for formally withdrawing from the class after the first 4 weeks is the student’s. Chronic non-attendance after the first four weeks may cause a reduction in the letter grade that was earned or a grade of “F” to be awarded.

Course Grade:
Your final grade for the course will be based on the number of points you accumulate during the semester. The course objectives and associated points are detailed elsewhere in this syllabus. Students who do not formally withdraw and do not complete minimum course requirements will earn a failing grade. Incompletes are at the instructor’s discretion and only granted due to extenuating circumstances.

Late Assignments:
No late work will be accepted. The instructor is aware that technical problems do arise for time to time; therefore, the lowest lab score will be dropped.

Make-ups:
Making up exams is solely at the discretion of the instructor with written documentation expected to substantiate the cause of an unexcused absence.

Cheating:
Collaboration with your fellow students is encouraged; however, you are expected to complete all of the labs individually. Students found cheating on exams or representing the work of others as their own will be given an “F” grade for the exam/assignment and for the course. Students caught cheating will also be introduced to Lizanne Leach the Coordinator of University Student Discipline.

Incomplete:
A grade of “I” will be awarded when, due to unanticipated and extenuating personal circumstances, the student can not complete the class. An “I” grade will only be awarded at the written request of the student, given to the instructor prior to the beginning of the final exam week. The instructor has the final determination in awarding an “I” grade.
# Class Schedule

The class schedule and assignments are subject to change at the discretion of the instructor.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Section 01</th>
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<tbody>
<tr>
<td>Week One</td>
<td>Introduction&lt;br&gt;History of GIS&lt;br&gt;What is a GIS&lt;br&gt;*In class Raster Lab&lt;br&gt;*Read Demers Chapter one&lt;br&gt;*Photo Flashcard – Due Thursday</td>
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<td>Week Two</td>
<td>GIS Data Models – Raster Vs. Vector&lt;br&gt;*Read Demers Chapter Four&lt;br&gt;*Read ArcGIS Chapters One – Four&lt;br&gt;*Lab - ArcGIS Exercises 3a – 3c and 4a – 4c&lt;br&gt;*Raster Lab Due Tuesday&lt;br&gt;*Lab - Chapter Three (3C step 15) &amp; Chapter Four (4C step 18) Due Thursday</td>
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<td>Week Three</td>
<td>GIS Data Models – Raster Vs. Vector&lt;br&gt;*Read Demers Chapter Five&lt;br&gt;*Chapters Five and Six – ArcGIS Exercises – Large format printing and layouts&lt;br&gt;*Lab – Chapters 5 &amp; 6 – Due Thursday</td>
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<td>Week Four</td>
<td>GIS Data Models – Raster Vs. Vector&lt;br&gt;*Chico Labs&lt;br&gt;*Read Demers Chapter Three&lt;br&gt;*Chico Lab – Ex #1 – Due Thursday</td>
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<td>Week Five</td>
<td>Earth as a Sphere&lt;br&gt;Ellipsoid Models and Datums&lt;br&gt;Projections&lt;br&gt;*Chapter 13 ArcGIS Exercises - Projections&lt;br&gt;*Quiz #1 Tuesday&lt;br&gt;*Chico Lab – Ex #2 – Due Thursday</td>
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<td>Week Six</td>
<td>Precision Vs Accuracy&lt;br&gt;Feature Types&lt;br&gt;Midterm Review&lt;br&gt;*Read Demers Chapter Six and Seven&lt;br&gt;*Lab – Chapter Thirteen (supplement) - Due Thursday</td>
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<td>Week Seven</td>
<td>Midterm&lt;br&gt;*Applied Quiz</td>
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<td>Week Eight</td>
<td>Spring Break</td>
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<td>Week Nine</td>
<td>Cartographic Basics&lt;br&gt;Properties of Spatial Data&lt;br&gt;*Read Demers Chapter Two and Fourteen&lt;br&gt;*Chapter Seven GTK ArcGIS- Classification and Labeling</td>
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<td>Week Ten</td>
<td>GIS Analysis Functions&lt;br&gt;*Read Demers Chapter Eight&lt;br&gt;*Chapter Eight ArcGIS exercise – Querying Data&lt;br&gt;*Applied Lab #1 – South America Cartographic – Due Thursday</td>
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<td>Week Eleven</td>
<td>GIS Analysis Functions: Integrated Analysis of Spatial and Attribute Data&lt;br&gt;*Read Demers Chapter Nine&lt;br&gt;*Chapter Ten – ArcGIS exercises – Spatial Selection&lt;br&gt;*Lab - Chapter Eight (supplement) – Thursday</td>
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| Week Twelve | GIS Analysis Functions: Integrated Analysis of Spatial and Attribute Data  
Read Demers Chapter Twelve  
Chapters 11 & 12 – ArcGIS exercises – Spatial Analysis  
Lab – Chapter Ten (supplement) – Due Thursday |
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| Week Thirteen | GIS Analysis Functions: Integrated Analysis of Spatial and Attribute Data  
Read Demers Chapter Ten |
| Week Fourteen | GIS Analysis Functions: Integrated Analysis of Spatial and Attribute Data  
Read Demers Chapter Eleven and Chapter Thirteen  
Lab - Chapters 11 and 12 (supplement) – Due Thursday  
Quiz #2 – Thursday |
| Week Fifteen | Data Quality  
Applied Lab Project #2 – The Grand Canyon |
| Week Sixteen | GIS Package Functionality  
Selecting a GIS  
Read Demers Chapter Fifteen  
Applied Lab Project #2  
Applied Lab Project #2 Due Thursday  
Final Review |
| Week Seventeen | **Final Exam** |

**Additional Resources:**

**Cartographic Links:**
- EPA Enviro-Facts Pages: [http://www.epa.gov/enviro/](http://www.epa.gov/enviro/)

**Data Links:**
- Natural Earth Data: [http://www.naturalearthdata.com/](http://www.naturalearthdata.com/)
- California Spatial Data Library: [http://www.gis.ca.gov/](http://www.gis.ca.gov/)

**Links of Links:**
- [http://www.cgrer.uiowa.edu/servers/servers_references.html#interact](http://www.cgrer.uiowa.edu/servers/servers_references.html#interact)